

In the outstanding Office Action, Claim 24 was rejected under 35 U.S.C. §112, second paragraph, for indefiniteness; Claims 4 and 23-25 were rejected under 35 U.S.C. §102(b) as being anticipated by Babcock et al. (U.S. Patent 2,986,460); and Claims 4, 5 and 23-25 were rejected under 35 U.S.C. §103(a) as being unpatentable over Babcock et al.

With regard to the rejection under 35 U.S.C. §112, second paragraph, Claim 24 has been amended to clarify the subject matter recited therein.

Also, Claims 4 and 23-25 have been amended and Claims 26 and 27 have been newly added herein. These amendments and additions in the claims find clear support in the original specification, claims and drawings. For example, Claims 4 and 23-27 are supported by page 24, line 3, to page 26, line 8, of the specification. Hence, no new matter is believed to be added thereby. If, however, the Examiner disagrees, the Examiner is invited to telephone the undersigned who will be happy to work in a joint effort to derive mutually satisfactory claim language.

Briefly, Claim 4 of the present invention is directed to a method of producing reduced iron pellets including pelletizing a mixture of iron oxide powder, a reducing material and a binder into raw material pellets, reducing the raw material pellets to obtain reduced iron pellets, and rolling the reduced iron pellets at a temperature ranging between 800 and 1200°C sufficiently such that the reduced iron pellets undergo sintering. By pelletizing such a mixture into iron pellets and rolling them as such after being reduced, the reduced iron pellets undergo sufficient sintering, thereby becoming more compacted and thus improving their collapsing strength significantly.¹

Babcock et al. disclose a production of iron. Nonetheless, Babcock et al. do not teach "pelletizing a mixture of iron oxide powder, a reducing material and a binder into raw

¹ Specification, page 25, line 17, through page 26, line 8.

material pellets" as recited in amended Claim 4. On the other hand, Babcock et al. disclose a reduced pellet producing facility in which iron ore coke and carbonaceous material are supplied into a rotary kiln type furnace, heated to a temperature not sufficient to either melt or appreciably sinter the material, and transferred to a horizontal cooling furnace immersed in a water bath.² Therefore, the method recited in amended Claim 4 is believed to be distinguishable from Babcock et al., and thus is not anticipated thereby.

Because Babcock et al. do not disclose the preparing step as recited in Claim 4, the teaching of this reference is not believed to render the method recited in Claim 4 obvious.

Furthermore, Applicants wish to point out that Babcock et al. do not disclose retaining iron pellets at a temperature ranging between 800 to 1200°C as recited in Claim 4, reducing the iron pellets in a direct reducing rotary furnace provided with a rotary flat floor as recited in Claim 25, nor providing a hopper as a cooling furnace and spraying the iron pellets with water as recited in Claims 26 and 27. For example, Babcock et al. disclose the reduced ore being *cooled down from 1970 °F to 1100 °F, i.e., simply cooling from 1077 °C down to 593 °C, but not retaining in the range recited in Claim 4*, and the rotary cooler horizontally immersed in a water bath. As such, the subject matters recited in these claims are further distinguished from Babcock et al..

For the foregoing reasons, Claim 4 is believed to be allowable. Furthermore, since Claims 5 and 23-25 depend directly from Claim 4, substantially the same arguments set forth above also apply to these dependent claims. Hence, Claims 5 and 23-25 are believed to be allowable as well.

² See, for example, Babcock et al., column 4, line 59, to column 5, line 44.

In view of the amendments and discussions presented above, Applicants respectfully submit that the present application is in condition for allowance, and an early action favorable to that effect is earnestly solicited.

Finally, the attention of the Patent Office is directed to the change of address of Applicants' representative, effective January 6, 2003:

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Respectfully submitted,

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IN THE CLAIMS

Please amend Claims 4, 23, 24 and 25, and add new Claims 26 and 27 as follows:

--4. (Twice Amended) A method of producing reduced iron pellets comprising:

pelletizing a mixture of iron oxide powder, a reducing material and a binder into raw material pellets;

reducing the raw material pellets to obtain reduced iron pellets; and

rolling the reduced iron pellets at a temperature ranging between 800 and 1200°C sufficiently such that the reduced iron pellets undergo sintering.

23. (Amended) A method of producing reduced iron pellets according to claim 4, wherein the [raw material pellets are obtained by pelletizing a mixture of an iron oxide powder and] reducing material comprises a carbonaceous material powder.

24. (Amended) A method of producing reduced iron pellets according to claim 4, further comprising first cooling the reduced iron pellets at least down to 600°C and then further cooling the reduced iron pellets [at least] down to a range between [233] 23 and 100°C. *~WM~*

25. (Amended) A method of producing reduced iron pellets according to claim 4, further comprising providing a rotary cylinder having a heat retaining rolling portion positioned to receive the reduced iron pellets from a direct reducing furnace provided with a rotary flat floor for the reducing of the raw material pellets.

26.-27. (New)--